# STRONGPOINTS IN A DEFENSE AGAINST BLITZKRIEG: POTENTIAL AND PROBLEMS IN PERSPECTIVE

A Monograph

by

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Historically, the Spanish Civil War showed the potential of islands of resistance, but they were never used as part of an overall defensive concept in that conflict. During the Russian Winter Offensive of 1941-1942, the Germans were forced to form islands of resistance and integrated them into a modified version of the elastic defense which they had used in the First World War. In the 1973 Arab-Israeli War, the Israeli Army used both fortifications and mobile armored forces in an integrated system very much like Miksche's web defense.

US doctrine covers fighting in urban terrain, but does not describe how defended urban areas and other islands of resistance behind enemy lines could be integrated into a system of defense. Filling this gap in our doctrine requires: understanding how different types of strongpoints can serve different purposes; knowing how to locate a strongpoint zone so it does maximum damage to the enemy and at the same time survives; and developing control measures that will allow the maximum amount of interaction between stationary forces in fortifications and counterattacking heavy movile forces.

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Strongpoints in a Defense Against Blitzkrieg: Potential and Problems in Perspective by LTC Donald Cranz USA, 45 pages

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# I. Introduction

This monograph develops a conceptual framework for the integration of stationary forces in strongpoints into a defense based primarily on heavy mobile forces. It is oriented on NATO in Europe, where most of these strongpoints will be based on urban terrain. It combines the theoretical writings of Carl von Clausewitz and Ferdinand O. Miksche with historical experience in the Spanish Civil War, World War II, and the 1973 Arab-Israeli War. It then points to doctrinal problems which must be solved before we can try to implement it.

Throughout military history, man-made structures have been used to protect against weapons effects and to control maneuver. From the Long Walls of Athens or the Great of Wall of China in ancient times to the roadblocks at Bastogne or the fortifications on the Golan Heights in our age of mechanized warfare, soldiers have used them to multiply their powers of resistance.

Nevertheless, in Western Europe at the end of the 20th century, the construction of structures designed solely to serve as fortifications seems unlikely. On the one hand, the very modest success of the "West Wall" and the spectacular failure of the Maginot Line suggest that fortification does not work well in a European environment. Perceptive observers like F. O. Miksche have been quick to point out that

fortifications can be in important respects positively harmful.[1] On the other, chronic land shortages and powerful political considerations virtually guarantee that no significant structures will be built in the most likely zone of Warsaw Pact attack, Western Germany.[2]

If military construction since the Second World War has been extremely limited, civilian construction in Western Germany has resulted in a concentration of urban infrastructure of an unprecedented scale and durability.[3] The question naturally arises, "How can the 'urban sprawl' of Western Germany be developed for defensive and counteroffensive purposes to help frustrate a Soviet Blitzkrieg?"

This paper investigates the the strongpoint defense in general and the practicality of adapting the infrastructure already present in Germany for the formation of fortified islands of resistance as part of an overall defensive system based on maneuver forces. The theoretical analysis will be based on the classic discussions of the subject by Carl von Clausewitz and F. O. Miksche. Historical examples from the Spanish Civil War, the Russian Winter Offensive in 1941, and the Golan Heights in 1973 will show the validity (or lack thereof) of the theoretical concepts. A speculative section will apply the results of theoretical and historical analysis to the current situation in Europe and propose areas for the future development of US Army doctrine.

## II. Clausewitz on Fortification

In Book VI of On War, "Defense," Clausewitz deals with the subject of fortifications twice. His first analysis describes the local effects that a fortification can have; the second one integrates these effects into Clausewitz's concept of defense.

Chapter 10 lists no fewer than eleven separate functions that a fortification can have.[4] If we imagine the immediate tactical effects that a stubbornly defended piece of urban terrain could have in modern Europe, we see that most of these functions remain relevant today. Several in particular seem to make sense in a modern setting. The infrastructure of an urban environment makes the storage of all classes of supply easier, less subject to damage by weather, less visible to enemy detection means, and, in most cases, easier to defend against both direct and indirect fires; in Clausewitz's terms, it can serve as a depot. Built-up areas in and of themselves constitute a significant impediment to the free movement of material even in peacetime, as anyone who has driven through a German town knows. Although an extensive highway construction program has built high speed roads around many of the worst bottlenecks, the bypasses are typically within just a few kilometers of the built-up area and therefore still highly vulnerable to interdiction from forces inside the area; in Clausewitz's terms, a built-up area can block lines of communication. The constricted routes of movement and fields of fire typically found in an urban area mean that a pursued force

attempting to break contact can usually do so, at least temporarily, with a small rear guard; in Clausewitz's terms, it can serve as a refuge. And, because of all of the above, a defended built-up area can be a source of tactical advantage over a fairly wide area surrounding it. Clausewitz calls this "protection for extensive camps."

This enumeration of functions, however, is only the beginning of Clausewitz's ideas about the use of fortifications. He is, in fact, laying the groundwork for his concept of the defense of a theater of operations. An attempt by the attacker to overwhelm fortifications is of course ideal for the defender, since by doing so he obligingly launches his aggression at the point where the defender is best prepared to resist it. This doesn't always happen. Even in the early 19th century most fortifications could be by-passed, albeit at a price in terms of time, trouble, and vulnerability. In many cases the attacker could find a route that wasn't blocked by a fortification at all. So Clausewitz's analysis of defense must consider the situation of a deliberate or accidental bypass.

Analogously, in the context of the initial stages of a NATO defense, it would be ideal for Soviet forces to attempt to fight through built-up areas, since this is virtually always time consuming, and time is what NATO needs to recover from the first shock of a surprise attack. A quick look at the road network of Western Europe reveals that major roads frequently detour around cities, however, and that even where they don't, secondary and tertiary roads can be be found for a bypass. The

infrastructure to facilitate the Soviet doctrine of bypassing built-up areas is in place. Clausewitz's defender and NATO face similar problems. What can Clausewitz tell us about the defender's situation when he is being by-passed?

He maintains that a commander in a fortified area which is being bypassed has five choices: he can send one part of his force to pursue the invader, while retaining another part to guard the fortification; he can move his entire force to get directly in front of the attacker; he can attack the invading force on the flank which has now been exposed by the invader's own movement; he can disrupt the LOC's within range of his fortification; or, most radical of all, he can invade the territory of the invader, since he is now between his opponent's main force and bases.

For Clausewitz, assaulting the flank of an enemy already focused on objectives well beyond the bypassed fortification holds the best promise of success.[6]

Given recent historical experience in which fortification has tended to lead to passivity, the clear preference for flank attack may seem surprising, but it is typical of Clausewitz's very offense-oriented concept of defense. His concept of how fortifications can assist the defender is both clear and dynamic, and can help us understand the potential of such measures on a mechanized battlefield in Europe. In fact, he is aware of most modern objections to fortification, and, indeed, takes them into

account as dangers and problems for the defender. A fortified place has specific effects within the range of its fire. More importantly, properly sited and properly used, it has decisive impact on maneuver well beyond the range of its fire. It can play a crucial role in the defender's ability to transition into the most decisive form of the defense--counterattack. These concepts, more than one hundred years after Clausewitz's death, became the foundation of the defensive portion of one of the great classics of mechanized warfare, F. O. Miksche's Attack.

## III. F. O. Miksche and the "Web Defense"

Originally an officer in the Czechoslovakian army, F. O. Miksche fought as a volunteer artillery and staff officer on the Republican side of the Spanish Civil War from 1936-1939[7]. The experience gave him a unique opportunity to observe and experience the first "live fire" attempts to combine the technological revolution in mobility, protection, firepower, and communication since 1918 with tactical concepts.[8] The dramatic successes--and even more dramatic failures--of these experiments led him to conceptualize theories of offense and defense which he tried personally in Spain, and which he regarded as confirmed by the subsequent experience of others, particularly in the German invasion of Poland in 1939 and France in 1940.[9] He explained his ideas in a book published in 1943, Attack, A Study of Blitzkrieg Tactics.

Miksche is as offensively minded as Clausewitz. After explaining in

considerable detail how the technological and tactical elements of blitzkrieg are combined for maximum offensive effect, however, Miksche then turns around, and explains how the defender has the best chance of taking them apart.[10] He christens his concept, "The Web Defense". Miksche starts with the premise that "There is only one answer to the Blitz . . . a new method of defense, a fundamentally new conception of defensive systems and tactics."[11] This system is based on personal observations, and leads directly to the idea of fortifications, which he calls "islands of resistance". [12]

> The part of a defensive force immediately threatened by the irruption of massed tanks will necessarily have to give up one of the two elements which make up all fighting; it will have to give up movement." [13]

Miksche does not believe that it is possible for a defense to achieve a counterconcentration of tanks fast enough to block an initial blitzkrieg assault. Therefore the relatively light forces in the breakthrough sector have no choice but to accept that they are temporarily unable to maneuver. Their mission then becomes "split(ting) off the enemy mechanized forces from the unmechanized forces and supply services following them,"[14] rather than stopping the attack. This requires that they "should be able to offer resistance for an extended period of time."[15] Resisting for extended periods of time, even after the armored attack has passed through, requires that "all or most of the defensive system should be located in tank-proof country."[16] To use the terms of the 19th century--the defensive system should be located in a series of tank-proof

fortifications.

Whereas for Clausewitz the troops in the fortifications have five options, those in Miksche's islands of resistance have only three.[17] They can detach elements to attack the invader; they can block the LOC's that are in their vicinity; and they can mount counterattacks with all their forces on the flank of an enemy who tries to move through their sector.[18] The effect on the attacker is the same. As Clausewitz states:

> ". . . this is the main point: an attacker who wants to bypass the defender is engaged in two totally opposed efforts. Fundamentally, he wants to advance to reach the goal of his attack; the possibility that he will be attacked at any moment on the flank . . . compels him continually to focus on the side from which it may come. These two efforts contradict one another, and lead to such a confusion of internal arrangements, such problems of organization that are supposed to account for both possibilities, that it is difficult to imagine a . . . more undesirable situation."[19]

Miksche says the same thing another way:

> "The attacker . . . has his attention distracted to several different directions at the same time; he has to fight a number of little battles simultaneously. The fire of the attacker, whether bombardment from the air or artillery fire, is dispersed in time and space and thereby rendered less effective."[20]

Although Clausewitz and Miksche expect many of the same effects from fortifications, it would be a fundamental error to insist that their ideas concerning defense are the same. Miksche is confronting a different kind of warfare. Developments in communication, transportation, and firepower have resulted in a permanent distribution of forces on the battlefield.[21] At the same time, it has made such a concentration of

combat power possible that the defeat of a large blitzkrieg formation in a single battle is highly unlikely.[22] The result is that while Clausewitz thinks in terms of defeating the attacker in a battle narrowly circumscribed in both time and space, Miksche imagines a battlefield "thirty to sixty miles"[23] in depth and with several distinct phases. There is thus a second level of thought in Miksche--one that unifies the effects of his system of fortifications and of many different battles occurring around them. It is only this level of thought which makes it possible for him to conceptualize the web defense.

The web defense is designed to defeat the blitzkrieg by stages, and each of its parts has a specific function. There are two "principal positions"[24] which are designed to function as barriers to the advance of the blitz, and to fragment its formations. These are separated by a guerrilla zone which by its depth passively insures that an attack cannot cross both principal positions in a single bound and by its organization and manning actively denies the attacker freedom of maneuver. At intervals there are "transverse barriers" located to prevent the attacker from expanding any penetration laterally.

All of these positions are characterized by islands of resistance varying in both density and size depending on the function of the zone in which they are located. It is the combination of their effects which stops the blitz's progress.[25] Many of the primary routes of advance will be blocked because islands are located on them--in negotiating a bypass, the attacker

will always be delayed and will often be split. He is also likely to suffer significant losses from antitank fire from the islands and from the mine fields close to them. Once the mechanized formations have passed, the forces in the islands can take up a more active role. The supporting infantry and the extensive logistics elements that are essential to translating tactical into operational success are excellent targets for the forces in the islands. Because of both their equipment and their knowledge and preparation of the terrain, these forces are in a position to conduct highly effective attacks. The immediate effect is to slow the advance of the lead forces and to deprive them temporarily of the impetus key to their achieving the depth they require for success. This all occurs on a relatively small tactical scale, and as Miksche is at pains to point out, can produce a breathing space but no victory for the defender. For that, a counterattack by large mechanized units is required.[26]

The web defense has already served a crucial function in creating enough time for the defender to determine the location of the main attack, organize and move his own mechanized formations, and establish a condition in the air that makes movement practical.[27] The islands of resistance will continue to play a crucial role in the counterattack. They will be the "basis for the sorties of tanks", and the "pivot around which moves will swing;" they will be a "network of supply points," and "'a non-return valve'" which will "not only keep out the forces of one side but . . . rapidly and easily let through its own forces."[28] These are

the modern equivalents of Clausewitz's idea of a fortress as a linchpin for the battlefield deployment of troops, as reliable depots, and as protection for an army quartered in the vicinity.

As Miksche himself says, "Though war has changed so much, some of the old rules still hold."[29]

## IV. Historical Example--Miksche in Spain

As already mentioned, Miksche's theories about blitzkrieg are founded partly on his experience of its infancy in the Spanish Civil War. This strange and savage conflict, which embodied in microcosm most of the worst man-made plagues of the 20th century, was used systematically, and quite openly, by various powers as the proving ground for theories of mechanized warfare. All of them, with the exception of Germany, drew the wrong conclusions. Miksche, as a volunteer on the republican side, toward the end of the war was on the receiving end of offenses that were beginning to have the hallmarks of what eventually became known as blitzkrieg.[30] His experience and comments, and the actual course of some of the major battles, give us the earliest possible examples of the use of urban fortifications against a blitzkrieg-type attack.

The most famous battle of the war, and the largest Republican victory, was the battle of Guadalajara, during which a highly mechanized Italian force attacked much less mobile infantry forces in what in good weather

was good tank country but which had temporarily been turned into a quagmire by unseasonably heavy rain, sleet, and snow. The accepted contemporary judgement was that the Italians' total failure was a demonstration of the impracticality of mechanized warfare.[31] The exception was "the German General Staff," who according to Miksche

> ... were perhaps armoured against this feeling by the depth of their contempt for Italians as soldiers. They did not say 'It can't be done'. They said 'naturally these people can't do it'. [32]

Miksche clearly shares the German attitude, but he also thinks other factors besides incompetence and bad weather played a role: "the Republican defence and counteroffensive profited from Republican islands of resistance at Triueque and Brihuega."[33] Miksche's claim has a certain plausibility given the fact that the miserable weather had made cross-country movement very difficult even for tracked vehicles, thus forcing them off of the fields and into the towns; but other sources do not explicitly mention the towns as islands of resistance and one even states that Italians reached "Brihuega almost unopposed and occupied the old walled town." [34]

The summer following Guadalajara, the Republicans launched on a massive scale their own mechanized offensive, the so-called Brunete offensive, an ill-fated attempt to cut off three nationalist divisions besieging Madrid.[35] Like the Italian offensive at Guadalajara, the concept was very advanced and based on ideas that are key to blitzkrieg.[36] Here

the historical record confirms Miksche's analysis:

> At Brunete General Franco's forces held towns and villages on the flanks of the attack . . . that permanently limited the advance; other villages . . . held out just long enough after they had been surrounded, to prevent the Republicans reaching beyond them to the decisive crest that commanded the communications of Franco's army besieging Madrid.[37]

Even in the initial stages of the attack, where the Republicans enjoyed nearly complete surprise, massive artillery support, and force ratio's of nearly 9:1, they were held up for for more than twelve hours by fortified villages reinforced with antitank guns. The guns in the towns eliminated the tanks, and the attacking infantry, in spite of its overwhelming numbers, could make only snail-like progress.[38] The Republican offensive eventually failed.

As the war progressed, both sides became better at employing mechanization, but the nationalists enjoyed a growing material superiority. In March 1938 they launched the Aragon offensive. In classical blitzkrieg fashion, it combined the action of tanks and aircraft, advancing 36 kilometers on the first day, and never paused long enough to allow the Republicans to regroup until it reached the Mediterranean. Miksche claims to have had success with fortified villages in this period. If he did, it seems never to have been on a sufficient scale to appear in the historical record. But, just as offensive practice was becoming more coherent, so defensive ideas were gaining in refinement. Miksche's implementation of the "materos" (hammer head) system shows on a small

scale many of the ideas central to his concept of defense.[39] It is not conceived as being part of a line, but as being a self-contained point. Even its perimeter is non-linear, the firing trenches which form the hammerheads being connected to the center of the position, but not to one another. The need for self-sufficiency imposed by its non-linear character requires that it also be a combined arms installation, including not just infantry weapons but artillery, antiaircraft, and engineer systems as well.

## V. Historical Example--Germans in Russia, Winter, 1941

Miksche observes that "the Spanish War ... went through every phase of development from the most primitive to the most modern."[40] As a civil war it was of necessity fought with forces organized on an ad hoc basis. As a consequence, it was fought by armies without a unified doctrine or training base. This was not the case with the German Army in World War II. It had spent the majority of the First World War on the defensive, and had developed a highly effective doctrine for it. In its status during much of the inter-war period as a third-rate military power, it had devoted much thought to defensive warfare. Disagreements among the proponents of positional and mobile warfare had resulted in the incorporation of the elements of both into the defensive concept of the basic German doctrinal manual, Truppenfuehrung, published in 1933.[41] When in December of 1941 the German Army suddenly found itself on the defensive, it had a thoroughly tried defensive doctrine ready to hand,

and a senior cadre which had implemented it with great success, albeit usually not against a mechanized enemy.

If that fact worked to the Germans' advantage, almost nothing else did. In an effort to win the war against the Soviet Union in a single campaign, they had pressed their offensive into territory that was far beyond their ability to hold against determined attack.[42] As a result, they could be, at least temporarily, massively out-gunned in any sector the Soviets chose for concentration and counterattack. Savage winter weather and the breakdown of the German supply system resulted in a drastic shortage of winter clothing, and a rate of non-battle casualties to cold injury even higher than those inflicted in combat.[43] Hitler's obstinacy and his decimation of the upper levels of the Wehrmacht leadership in December 1941 eliminated operational withdrawal an option. Finally, because of the sudden and massive introduction of the T-34, the Soviet armored forces greatly overmatched the German's antitank capability.[44]

By the end of December, because of a combination of overwhelming Russian superiority in combat power, extremely dispersed defensive dispositions, and weather that made sheer survival a daunting challenge, the Germans found that their "defensive front in Russia consisted of a series of local strongpoints, where battered German units defended themselves as best they could against waves of Russian attacks."[45] The strongpoint defense was not German doctrine; in many ways it wasn't

even their decision. It evolved as the only possible response to extraordinarily difficult circumstances. Yet the influence of the old doctrine reasserted itself strongly in the actual execution of the defense, turning it into a system based on the combined effects of stationary and moving elements and their firepower.

German doctrine called for a defense that was much more linear than any which could be achieved on the Russian front. The Schwerpunkt of the "elastic defense" was a main battle position consisting of unbroken lines of connected trenches.[46] It is nevertheless easy to overestimate the "linearity" of this defense. The main battle zone was only one of three zones. The other two, the advanced-position/outpost zone and the rearward zone, were both non-linear and characterized by unconnected positions. Even the main battle zone itself, though all its positions were connected, had strong positions integrated into the trench systems that served as points around which maneuver could turn and as supports for the battle and which could briefly exist independently. The underlying concept of all these positions was to create conditions which facilitated either a small scale counterstroke or a larger and more carefully orchestrated counterattack. In other words, although they were linear positions, they were oriented on mobile warfare and designed to create the sort of non-linear situation in which the German Army felt it excelled.

As practiced, the strongpoint defense, initially a mere reaction to

necessity, was transformed into a drastically thinned out version of the elastic defense.[47] Because of a lack of manpower, the outpost zone has collapsed inward on the main battle zone and is used to at least maintain surveillance between the islands of resistance there. The main battle zone has for the same reason lost its connecting trenches. Nevertheless, its essential characteristic of tactical depth to absorb the shock of the enemy attack is achieved to the highest degree possible, partly by the siting of heavy weapons, partly by the positioning of local reserves, and partly by ensuring that all forces, to include support personnel, are occupying positions which can serve a tactical function. Realistically, the Germans could expect few opportunities to mount more than a very local counterattack, but the possibility for such a tactic is still inherent in the dispositions, should the necessary forces ever become available. In the absence of those forces counterattacks by fire alone were planned, and sometimes executed with stunning success. [48]

At both the lowest level (i.e., organization of the strongpoint) and at the next level up--the relationship of the strongpoints to one another and their function as groups--we see not only a clear relationship to the elastic defense but also to Miksche's web defense.[49] The individual strongpoints orient on all avenues of approach into them and thus form a perimeter. This perimeter is based not just on fire but on obstacles--in Miksche's case tank proof country, mines, and wire; in the German's case snowfields, wire, knife fences constructed out of farm implements, and mines.[50] And the strongpoint, as a more or less independent entity,

contains not just infantry, mortars, and machineguns, but heavy antitank weapons and artillery as well.[51]. The forward positions are the infantry and the light weapons which protect the heavier direct fire weapons that destroy tanks and are the heart of the defense.[52]

Both systems see offensive action, by fire, or by a combination of fire and maneuver, as a key to the strongpoints' effectiveness. This is surprising, since both systems have as their initial premise that the attacker will be able to concentrate overwhelming power at the point he chooses for attack. But it leads us to the underlying idea of this type of defense. The attacker can indeed concentrate overwhelming power at the point of attack, but that point moves as the attack progresses; maintaining concentration at the point is in itself very difficult, and furthermore tends to weaken tactically those areas where it initially was located. It is Clausewitz's idea of the attacker "engaged in two totally opposed efforts". The defender who stays in place and survives enjoys temporarily a rapidly improving force ratio. If his timing is right, he can indeed take the offensive and do tremendous damage to a critical part of the attacker's formation at a critical moment.

The theory is clear and convincing. In practice, it "in many cases did achieve remarkable success against great odds".[53]

## VI. Historical Example--Golan Heights, 1973

Both technology and tactics have changed significantly since 1941.

Israeli experience in the 1973 War provides a more recent test case of strongpoint defense, although, because of the barren ground in the Golan and along the east bank of the Suez, it cannot tell us much about the practicality of hastily fortifying towns.

The strongpoint defense was forced upon the Israeli's primarily by the factor which played a major role on the eastern front of World War II--a shortage of manpower. In this case, however, there was more time to consider how the defense was to be conducted, and to make appropriate preparations. The War of Attrition which began shortly after the completion of the major parts of the Bar Lev Line (which was, in fact, done at a breakneck pace) gave the Israelis in the Sinai ample opportunity to appreciate the protective advantages of fortifications.[54]

The debate in Israel about the fortifications on the Suez Canal and the Golan heights was, however, about a much more important question than whether a meter of reinforced concrete can stop an artillery shell. The debate was about the most effective defensive system for Israel's borders, and whether and how fortifications would fit into it. We thus see an attempt being made in "peacetime" to do something which was never done in Spain at all, and was done only ex post facto on the Eastern Front--develop an overall defensive concept. The concept of fortifications at set intervals, linked by armored patrols, and backed up by armor and artillery reserves, eventually won out.[55] The fortifications were to maintain observation over the canal and resist any crossing attempts

within the range of their fires; the patrols were to prevent large-scale infiltration between the positions; and the artillery was to support the positions and the counterattacks that armored forces in reserve were to launch as soon as any significant attempt at penetration was identified. In its use of fortifications and patrols, the Bar Lev Line was identical to the German strongpoint defense. It enjoyed massive linear obstacles, however, and most decisively, after mobilization a force ratio allowing large scale counterattacks which could eventually transition into a true counteroffensive to the west bank of the Canal.

A similar system was constructed on the Golan, although there were significant differences. The linear obstacle was not the Canal but a tank ditch constructed specifically for defensive purposes. The fortifications were somewhat larger, located nearer to each other, and backed up more closely by prepared defensive lines. Furthermore, they were back-stopped by platoon-sized armored reserves.[56] Because the Israelis lacked physical depth between their forward positions on the Golan and some of their major population centers, the defense was designed to be tactically decisive in a much shallower area.

The Golan system simulates many aspects of the GDP in Europe, where there is no natural linear barrier to assist the defense, and very little depth for operational defensive maneuver. Particularly in the north, trafficability is not totally unlike Europe's, with significant patches of no-go and slow-go terrain.[57] Most importantly, however, the Syrians'

operational concept, unlike that of the Egyptians, was parallel to what the Russians' would be in an assault on NATO: bypass any resistance that could not be quickly annihilated and go deep for operationally significant river crossings.[58]

The Syrians not only adopted the Soviet operational concept, they achieved force ratios worthy of the Red Army--something like 10:1 in certain areas.[59] The effect of this force ratio was amplified by an event seen frequently at the NTC--the Israelis had, without knowing it, already lost the "recon battle". The Syrians were "quite well informed about the Israeli defenses and deployments . . . As a result of the aggressive patrolling the Syrians had detailed, large-scale maps of each section of the front, and had constructed a mock-up of the Israelis' Mt. Hermon observation post."[60]

Under these circumstances, it is hardly surprising that the Syrians achieved a significant degree of success initially. The preparatory fire strike, thanks to good intelligence, was highly accurate.[61] With one exception, no time was wasted in assaulting the 12 fortifications which overwatched the border. The attack was directed around them toward deeper objectives. The Syrian plan, evidently, was that "the strongpoints would be mopped up later after the principal division objectives had been seized."[62]

But here the Syrian plan met a check--the mop-up never happened.

"They never reduced these strongpoints by battle, and were constantly plagued by them. The bypassed positions served the Israelis throughout the initial defense as excellent observation posts from which they skillfully used artillery fire to deny the Syrians free movement. This was particularly significant against support elements attempting to move supplies forward to the front echelon units."[63]

Both north and south of Kuneitra the strongpoints had multiple effects in hastening the arrival of the Syrians' culminating point. They were directing artillery fire as mentioned above. They were the first to know that the Syrians had accepted that they could not achieve a breakthrough.[64]

Although there seems to be little discussion of this role in the accounts of the battle, it would be naive to think anything other than that surrounded strongpoints reported all movements of Syrian forces, and not just their retreat. The strongpoints must have given Israeli commanders near real-time intelligence on all major Syrian movements along the tank ditch, even after the actual battle had moved well to the west of it. Finally, the strongpoints represented a direct military threat which tied up very significant Syrian forces:

> With more than one brigade committed to blocking the Israeli infantry strongholds along the Purple Line, and with all of his remaining forces committed to the attacks which had come so close to success the previous afternoon, Brigadier General Ali Aslan, the 5th Division commander, had no reserves . . .[65]

It was a system that combined the effects of the fortifications and their

armored reserves, with the artillery and the major armored formations located behind them that brought victory to the Israelis on the Golan. Thus the Israelis used something very like Miksche's web defence. Islands of resistance consisting of fortifications backed up by small tank forces form a "'filter zone'"[66] which exact a heavy toll on the defender, but still must allow parts of the assault force to pass. The filter zone nevertheless continues to take a tremendous toll on the attacker, since there has been no time to eliminate the soldiers in the fortifications, who harass and attack both combat and combat support elements who try to get by them. This causes a lack of support which further slows the assault echelon, already attrited and split by the filter zone. The attacker thus approaches a culmination point after he has penetrated the filter zone, but before he can achieve a decisive penetration; he is counterattacked and annihilated in the "guerrilla zone", allowing the defender to seize the initiative and launch his "counterblitz". Behind the guerilla zone Miksche has a "second position . . . organized on identical lines"[67] as the first filter zone. The Israel defense on the Golan is here an exact parallel, since the Israeli settlements west of the Golan are organized as ad hoc fortifications, should the battle ever be carried that far.[68]

## VII. Historical Summary

The earliest attempts at conducting a blitzkrieg in Spain during the Spanish Civil War were frustrated partly by the lack of an understanding

of what was necessary to ensure their success. An additional major factor, however, was the almost accidental formation of islands of resistance which, although not integrated into an overall concept or system of defense, did dislocate the offensive timing and impede the full development of offensive momentum. In the Second World War, during the Russian 1941-1942 Winter Offensive, islands of resistance based on towns again formed almost accidentally as the only possible response to a desperate situation. These fortuitously formed strongpoints were integrated into the Germans' well-tried and well-understood defensive doctrine, which, although in some respects linear, contained many concepts which could be adapted to a non-linear situation. Inadequate forces prevented complete implementation of any defensive concept, but the results demonstrated that a non-linear defense could impede a numerically far superior attack. In October 1973, the Israelis successfully applied a version of the web defense against a competently orchestrated version of the Soviet blitzkrieg. Because it was based on a systematic defensive concept which integrated both static and mobile elements, this defense was successful.

## VIII. Implications for Current Doctrine

Current U.S. Army doctrine[69] addresses the subject of fighting inside a town or defending a single built-up area in considerable detail; there is also discussion of the way in which a defended built-up area might take part in what is essentially a linear defense.[70] But there is little about how

a bypassed force in a built-up area or other strongpoint could contribute to a defense except by successfully breaking out, or how a series of bypassed strongpoints might be deliberately established to form one part of an integrated scheme of defense. The rest of this monograph considers how strongpoints, understood as part of a system, might contribute to a defense.

Building from theoretical concepts and historical examples to a coherent and usable doctrine takes many minds and years of experience. There is no guarantee that the project is even feasible. At the moment, however, we seem to be at the start point in the American Army.

In a fine SAMS monograph published in 1986, Russel J. Goehring recognized the shortfall in Army doctrine, and analyzed the problems and potentials of a bypassed force[71]. Keying on von Manstein's famous dictum, "the safety of a tank formation operating in the enemy's rear largely depends on its ability to keep moving. Once it comes to a halt it will immediately be assailed from all sides by the enemy's reserves."[72], he proposes an extremely aggressive and maneuver-oriented set of tactics for bypassed forces. Although he thus excludes from consideration that which this paper identifies as key-- the use of forces in fortifications and their systematic integration with moving forces in areas already under enemy control, he develops a number of very important tactical concepts, among others, the following:

**tactical depth:** the fact that a unit is located in the enemy's rear area does not produce tactical depth, since spatial depth is only potential tactical depth; "unless bypassed defending forces act to translate their spatial depth into a current or future benefit for the defense, no increase in tactical depth occurs."[73]

**bypassed force as reserve:** "a bypassed force is a reserve force in depth, forward of the FLOT, and its offensive action an indirect approach that exploits the advantage of its position and the element of surprise against the enemy."[74]

**intelligence:** "The use of HUMINT by a bypassed force represents a reliable and accessible collection means almost independent of the situation."[75]

**survivability:** "Generally, threats to the bypassed force fall into two categories, the threat posed by enemy action against it and secondly, the threat posed by the difficulty of logistically sustaining its operations."[76]

These concepts will be used for the rest of this monograph.

It is surprising that ideas like these do not have more currency in US doctrine, but it is not accidental. Whatever the reason--memories of the disasters at Arnheim and Dien Bien Phu, or the scares at Bastogne and Khe Sahn--the encirclement of forces is something every commander tries to avoid. Once they are encircled, the moral imperative to get them out as quickly as possible dominates all subsequent tactical analysis. Before any thought can be given to something like the web defense, there needs to be some sort of assurance the islands of resistance can survive. If they can't, there is no sense in deliberately establishing them--not only because it is not cost-effective, and but because it is morally unacceptable as well.

Survivability can be influenced, sometimes decisively, by technology. Discussions of new technology are always tentative, first because in the

absence of extensive use the degree to which tactical concepts can translate it into military effect is unknown, and second, because it is an erratically moving target. Very briefly, advances in obstacle technology, antiarmor firepower, aerial resupply, and optics/sensors have increased strongpoints' survivability and effectiveness. These advances are counterbalanced by advances in blast producing munitions and delivery systems and a steady increase in their quantity.[77]

Another factor which will influence the survivability and effectiveness of strongpoints is the state of training and doctrine in the force which opposes them. In this area, the news from Group of Soviet Forces Germany is bad. As Christopher Donnelly has described in detail,[78] the Soviets have been giving extensive emphasis to fighting in built-up areas since 1980. This emphasis has not only been evident in a good deal of published theorizing on the subject, but by the construction of special "urban" training facilities and the conduct of numerous exercises as well.[79]

Until we have experience, it will not be possible for anyone to make more than a guess about the survivability of a strongpoint. To hazard one: it will be possible to maintain a strongpoint for a significant period of time, but only at a price. Unless the right kind of soldiers with the right equipment and logistics are present and have had time to prepare their positions, the strongpoint will have a life expectancy measured in hours. For the purpose of the further development of tactical concepts,

this guess will be the basis for the rest of this paper.

There are two kinds of strongpoints that a defense may have at its disposal--the deliberate and the hasty. The latter will look very different from the former, and their tactical utility will be quite different. Since our historical analysis suggests that they are likely always to be present, no matter what NATO's tactics are, we will deal with them first.

Because it was formed hastily and unintentionally, almost everything about a hasty strongpoint is likely to be less than ideal. Few if any preparations will have been made to defend the area, it will contain no supply stockpiles, and it will not be known in great detail by the defenders. The force inside will be infantry-poor for its missions, and bypass will probably be easy, since the strongpoint is not integrated into a deliberately planned system of defense.

Several actions can ameliorate these problems. Generous use of all members of the family of scatterable mines can quickly form critical barriers, which need in this case to be antipersonnel as well as antitank. No American unit in Germany today currently has the right proportion of infantry for the conduct of a strongpoint defense--the only answer is to keep the Soviet infantry out as long as possible. The problem is diminished slightly if there are already logistics elements in the strongpoint--combat trains of a company or battalion, for example. This has the additional advantage of providing some logistical depth to the

defender.

No matter how well these makeshift measures are followed, however, the hasty strongpoint is likely to misutilize forces, and result in their destruction in twelve to twenty-four hours if they do not move.

How should a commander--say a battalion commander who has a company in such a position one terrain feature on the other side of his current FLOT--think about the tactical problem confronting him?

Goehring's concept of tactical depth provides a useful tool. At the moment a unit occupies a strongpoint, it is likely to have good fields of fire into the surrounding area, and, in addition, to be capable of maneuvering in some direction. The tactical depth which it provides in this situation is very great; any further attack by the offense anywhere in the vicinity must reckon with the fact that a highly motivated heavy company may fall on its flank or rear with almost no warning. Furthermore, since it can move, the unit can help in its own relief. The longer the strongpoint is occupied, however, the more chance the attacker has to work around it, and the more time he has to deny it the maneuver option. At some point, it becomes very difficult or impossible for the surrounded unit to get out of its position by itself. It still provides a degree of tactical depth, however, since it blocks not only the terrain which it occupies directly, but all the terrain over which it has fields of fire; its ability to provide information is unimpaired. The problem of

saving the force, however, has become much more difficult, since relieving the unit has to be done entirely by an external force. Eventually, infantry is going to get into the strongpoint and drive the defenders back towards its center. At this point, the only tactical depth provided by the defending force is through the occupation of the ground it is actually on, and relief is nearly impossible.

It is the commander's job to balance the advantages of the continuously decreasing contribution to tactical depth against the continually increasing cost to his force structure. Most of the time, the commander will want to avoid the last stage. But judgement is always involved--if the force in the strongpoint is blocking the only intact bridge over the Main River between Schweinfurt and Bamberg, it might be an option that he had to take seriously.

The tactical potential of a deliberately established strongpoint defense is much greater than that of one established hastily, but it is by the same token conceptually more complex. First of all, there are many ways in which urban strongpoints or other islands of resistance might be organized; the best way to classify them is by their capabilities. There are four basic varieties: a minimal strongpoint, which can survive for more than 24 hours while surrounded, but with its own resources can't do much more tactically; a direct fire strongpoint, which has the direct fire capability to dominate surrounding fields of fire out to approximately three kilometers; a indirect fire strongpoint, which has the capability to

deliver significant indirect fire more than seven kilometers from its own perimeter; and a maneuver capable strongpoint, which has the capability to initiate mechanized maneuver.

Each of these requires a different force investment.

Minimal Strongpoint: Merely to survive twenty-four hours on a European battlefield, every strongpoint needs to be able to protect itself against infantry infiltration and assault around its entire perimeter. This requires not only more infantrymen than a heavy TOE has readily available, it also requires both barbed wire and explosive antipersonal obstacles, plus its own mortars and an effective defense against air assault aircraft. Unless antitank obstacles and tank-defeating direct fire weapons are available, tanks will be used to bull a breach through the infantry defenses, thereby greatly shortening the strongpoint's life expectancy. Logistics to include medical care must be provided. All other strongpoints represent an addition to the minimal strongpoint; no strongpoint survives very long without the elements listed above.

Direct Fire Strongpoint: the difference between this and the minimal strongpoint is a matter of degree. The direct fire strongpoint has the rapid-fire antitank firepower not only to stop assaults trying to get through the protective obstacles, it can also dominate by fire any attempts at maneuver in its vicinity out to 3000 meters. This implies a high number of heavy antitank weapons and a location providing

extensive fields of fire.

Indirect Fire Strongpoint: the tactical potential of a minimal strongpoint takes on a whole new dimension when it is equipped with long-range indirect fire assets. A minimal strongpoint off the main avenues of approach and on highly inaccessible terrain ten kilometers on the enemy's side of the FLOT becomes important if a single MLRS comes out of hiding and launches a firestrike against a high value target identified by corps intelligence.

Maneuver Capable Strongpoint: this strongpoint best fulfills the conditions of Goehring's concept of a "reserve in depth". The strongpoint will have to be large enough to accommodate the maneuvering force (which needn't be that massive) plus whatever engineer assets are needed to get it through the friendly and enemy minefields which will be scattered thickly around it. In addition the perimete r will have to lend itself to breakout, which probably means it will have to be long and go through various types of terrain.

The tactical commander establishing a defense based on strongpoints thus has a wide range of capabilities in the individual strongpoints. He must use these capabilities to establish a zone that exacts a high price from any enemy force that moves through it and provides an area in which friendly mobile forces have a decisive maneuver advantage over enemy forces. A tremendous amount of thinking has to be done about

how best to do this.

The zone of fortifications and strongpoints makes no sense by itself. It has to be part of a defensive system composed primarily of mobile elements. The commander must decide where to locate his zone in relation to the FLOT and the planned conduct of the battle by his mechanized forces. Since the fortifications are vulnerable to defeat in detail, he must locate the zone in an area where he expects to re-establish control within a fairly short time. This means that he must calculate roughly the location of the enemy's culminating point and locate the zone of strongpoints close enough to it so that his tactical counterattack carries back into the zone and allows the relief of the forces located there. If the counterattack does not carry the defender beyond the zone, and the attacker is in a position to initiate another offensive starting at its forward edge, then the zone will have to be moved further to the rear or run the risk of isolation and destruction in the enemy's second offensive.

Once the commander has decided where he wants his zone, he is going to have to decide how to organize "ownership" of the terrain. This is not easy. Unity of command means among other things single ownership of terrain. Situations in which that has not been readily achievable, such as a passage of lines, have been situations in which disasters routinely occur. Mention has already been made of the fact that USAREUR TOE's do not lend themselves to the establishment of strongpoints; if a strongpoint defense is established, a likely result is a mobile heavy unit

from USAREUR intermixed with static light forces from CONUS (or possibly even static light forces of an ally). It may be possible to make this work because of the radically different character of the two forces. If it isn't, then the force holding the fortifications must be given a sector through which the maneuver force gets movement rights on specific routes. The advantage of the second technique is that it can be accomplished with current terminology, concepts, and graphics; the disadvantage is that it exacts a significant tactical price by restricting the interaction of fires between the static and the moving force. Only extensive practical experience will tell us which techniques work best.

## IX. Summary of Current Implications

Except for information on how to fight in urban terrain, there is little US Army doctrine on the use of strongpoints as an integral part of a defense in Europe. The following major areas need further analysis:

Organizing strongpoints not just to survive but to have a specific tactical effect in terms of physically blocking avenues of approach, or serving as sources of direct fire, indirect fire, and maneuver forces in the enemy's rear;

Integrating different kinds of strongpoints in accordance with METT-T to form a system or zone which survives, reports, exacts a heavy penalty for any enemy movement, and continually threatens the depth of the

enemy formation with direct fire, indirect fire, and mounted maneuver;

Location of the fortified zone to hasten the enemy's culminating point to the maximum extent possible, but to stay within range of our counterattack;

Development of control measures to handle the mixing of forces inevitable in a defense based on strongpoints.

These "areas which need further analysis" are gaps in our current doctrine. At this point, however, adding paragraphs to the appropriate parts of FM 100-5, FM 100-5-1, and the various "how-to-fight" manuals would do more harm than good. What is needed is a more thorough search of available historical material;[81] consultation with allies on their approaches in this area;[82] and the most realistic possible training exercises.[83] Armed with the information that these activities will bring us, we will then be able to offer doctrinal guidance to commanders in the field.[84]

## ENDNOTES

1. "This Maginot Line was a formidable barrier, not so much against the German Army as against French understanding of modern war." F. O. Miksche, Attack, A Study of Blitzkrieg Tactics (New York: Random House, 1943), p. 9

2. That is not to say that significant preparations for terrain reinforcement have not been made. But, with the exception of explosive storage, they take no space, and this limitation is likely to remain in effect for the foreseeable future.

3. Drew Miller, Fortifications and Underground Nuclear Defense Structures for NATO Troops (Ph.D. Dissertation, Harvard University, 1985), p. 286

4. Carl von Clausewitz, Vom Kriege (Bonn: Duemmlers Verlag, 1980), pp. 673-681

Carl von Clausewitz, On War edited and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), pp. 395-399

Subsequent references to this work will give the page number(s) in the German edition, followed by those of the translation in brackets. For example: "4. Clausewitz, 673-681 [395-399]"

The eleven functions are as follows: as a reliable depot; as the immediate defense for large and wealthy cities; as a way of blocking lines of communication; as the linchpin for a battlefield deployment of troops in the vicinity; as staging areas or depots; as refuge for defeated tactical forces; as an actual shield to protect a nation against enemy attack; as protection for an army quartered in the vicinity of but not inside the the fortification; as a way of impeding the attacker's attempts to occupy a province which the defender leaves undefended; as the central point for guerilla warfare being conducted in the surrounding area; and as a defense of rivers and mountains. In the following chapter he goes into more detail in describing the proper siting of fortifications.

5. Clausewitz, pp. 816-820 [pp. 491-493]

6. Clausewitz, ibid. Of these five options, Clausewitz finds the first two the worst, since in one case, the defender divides his forces, and in the other, by leaving his position and rushing to get in front of the enemy, he forfeits all the advantages that knowledge and preparation of the terrain could give him and gets nothing in return but a frontal engagement. Attacking the LOC's can be effective, but unless they are unusually long

or tenuous, will not result in the kind of decisive results Clausewitz is seeking. If attacking straight into the enemy's homeland is a practical undertaking, then either some very special circumstances apply, or the defender should not have been defending in the first place.

7. Miksche, p. IX

8. Hew Strachan, European Armies and the Conduct of War (London: George Allen and Unwin, 1983) pp. 150-164

9. Miksche, p. V, pp. 29-46

10. Miksche, p. 227

11. Miksche, p. 194

12. Miksche, p. 203

13. Miksche, p. 204

14. Miksche, p. 195

15. Miksche, p. 195

16. Miksche, p. 196

17. Miksche, p. 201 They cannot and should not try to take on the armored spearhead frontally--such efforts merely "bounce off the armor" of the advancing tanks; and since Miksche is talking about relatively small units and fortifications (normally elaborately reinforced companies or battalions) there is no thought of a counteroffensive.

18. Miksche, p. 195

19. Clausewitz, p. 818; [p. 492]

20. Miksche, p. 198

21. James Schneider, "The Loose Marble--and the Origins of Operational Art", School of Advanced Military Studies, USACGSC, Ft. Leavenworth KS 4 July 1988 p. 11

22. Miksche, p. 240, 244

23. Miksche, p. 236

24. Miksche, p. 227

25. Miksche, p. 247, pp. 252-253

26. Miksche, p. 240

27. Miksche, p. 247

28. Miksche, p. 253

29. Miksche, p. 253

30. Miksche, pp. 27-28

31. Antony Beevor, The Spanish Civil War (New York: Peter Bedrick, 1983) p. 157

32. Miksche, p. 22

33. Miksche, p. 25

34. Beevor, p. 158

35. Beevor, pp. 197-201; George Hills, The Battle for Madrid (London: Vantage Books, 1976) pp. 143-166

36. The massive scale on which mechanization was employed and its early date is not the only thing which made this battle interesting--it was conducted under the strictest communist control (Beevor, p. 197) and thus was the only major attempt to employ the theories of Tuchachevsky and Triandavilov with mechanized forces on an operational scale before the purges and World War II. The battle's parallel with Stalingrad, in concept if not in execution, is intriguing.

37. Miksche, p. 25; Hills, p. 152, 157

38. Hills, p. 152

39. Miksche, p. 218, 220 In this system, fighting trenches on the perimeter are connected to a central position by communication trenches. Seen from above, the fighting trenches look like the heads of hammers, and the communication trenches like their handles. See Appendix to this monograph, Sketch 1

40. Miksche, p. 27

41. Timothy A. Wray, Standing Fast: German Defensive Doctrine on the Russian Front During World War II Prewar to March 1943 (Ft.

Leavenworth, KS: United States Army Command And General Staff College, Combat Studies Institute, Research Survey No. 5, 1986) p. 14

42. Wray, p. 59

43. Wray, p. 74

44. It is worth noting, in passing, that with the exception of the weather, a similar situation could arise for NATO in a sector which the Soviets choose for a breakthrough. Adherence to forward defense precludes operational withdrawal. Although a fully deployed NATO defense will have a credible overall force ratio at the Pact's H-Hour, there is no guarantee that the situation will allow full deployment, nor is it even probable that in areas chosen for a fire strike those force ratios will still pertain at the moment ground maneuver begins. And if the recent discoveries of Soviet strides in the development and deployment of reactive armor have taught us anything, it is that what Miksche in 1943 called the "old race" between armor and armament never stands still and that no side enjoys a technological advantage permanently.

46. Wray, p. 15

47. Wray, p. 86. See also Appendix to this monograph, Sketch II.

48. Wray, p. 87

49. Compare Wray pp. 79, 80, 86; with Miksche, pp. 218, 220, 249

50. Wray, p. 83; Miksche, pp. 213-221. The cited pages of Miksche contain a very interesting analysis of the advantages of minefields.

51 Miksche, p. 206; Wray, p. 87

52. A notable difference in the sketches is the location of the actual fighting positions, the Germans' being well outside the actual built-up area. Both the Germans and Miksche regard the very edge of the town as a bad place for fighting positions since when they are located there they are easily identified and subject to devastating direct and indirect fire. The Germans discovered that, because of the small size of the Russian villages, and the tremendous weight of the Russian artillery, it was essential for their fighting positions to be located well away from the village proper. Miksche, on the other hand, thinks that the defender should plan on conducting his most stubborn defense inside the first row of buildings. (Miksche, p. 238) Probably the difference can be accounted for by the difference in the types of structures involved--in Spain as in northwestern Europe the buildings are constructed mostly of heavy materials which will not burn; in Russian countryside, however, most

villages are constructed primarily of wood.

53. Wray, p. 89 Its drawbacks and vulnerabilities were severe, however, and to some extent its success was a function of Soviet blunders. (Wray, pp. 93-95) In an extensive series of after action analyses, the officers of the 4th Panzer Army (battalion commander and up) expressed themselves "strongly against a general reliance on strongpoint defenses." (Wray, p. 106) Wray cites the report of the XX Corps which seems balanced and in accordance with our record of the overall German experience:

> A continuous defense line is successful and strived for. A strongpoint-style defense may be necessary when insufficient forces are available for a continuous front. It is only tolerable for a limited time and as an emergency expedient. (Wray, p. 105)

54. T. N. DuPuy, Elusive Victory: The Arab Israeli Wars, 1941-1974 (Fairfax VA: Hero Books, 1984) p. 359-361

55. Dupuy, p. 359

56. S. C. Hawkins, "Blood and Iron on the Golan Heights", Marine Corps Gazette Jan., 1984 p. 63

57. Dupuy, p. 437

58. Dupuy, p. 442 P. H. Vigor, Soviet Blitzkrieg Theory (New York: St. Martins Press, 1983) p. VIII, pp. 192-194

59. Interview of BG A. Kahalani (IDF) by MAJ Geoffrey G. Prosche, "Israeli Defense of the Golan" Military Review Vol. LIX, No. 10, Oct. 1979 p. 4

60. Dupuy, p. 439

61. Hawkins, p. 64

62. Dupuy, p. 448

63. Hawkins, p. 165 The statement is true but misleading. Of the eight outposts south of Kuneitra, four were granted permission to withdraw, and did so. (Dupuy, 449)

64. "Eitan's headquarters received a radio message from surrounded Israeli stronghold A-3, at Ahmadieyeh, where the Syrian 7th Division had made its initial breakthrough. The stronghold reported that the Syrian supply trains were withdrawing, and that their tanks were pulling back down from the saddle and from the flanks of Mr. Hermonit. Not long

after this the Syrian infantry near Buq'ata began to pull back. The battle was over." (Dupuy, p. 459)

65. Dupuy, p. 457 Italics added.

66. Miksche, p. 229

67. Ibid.

68. MG Israel Tal, IDF, "Israeli Defense Doctrine: Background and Dynamics," Military Review, Volume LVIII, No. 3 March, 1978 P. 24-25

69. FM 100-5, Operations [May, 1986]; FM 71-2, The Tank and Mechanized Infantry Battalion Task Force [Jan., 1988]; FC 71-3, The Armor and Mechanized Infantry Brigade [Oct., 1985]; FC 71-100, Armored and Mechanized Division and Brigade Operations [May, 1984]; FM 90-10, Military Operations On Urbanized Terrain (MOUT) [August 1979]; and FM 90-10-1, An Infantryman's Guide to Urban Combat [Sept., 1982]

70. FM 90-10 Military Operations on Urbanized Terrain, August 79; Chapter 3

71. Russel J. Goehring, The AirLand Battle Trojan Horse: The Use of Bypassed Forces to Increase Tactical Depth in the Defense (Ft. Leavenworth KS: Command and General Staff College, School of Advanced Military Studies, 1986)

72. Goehring, p. 37

73. Goehring, p. 23 Emphasis in the original.

74. Goehring, p. 28 Emphasis in the original.

75. Goehring, p. 35

76. Goehring, p. 36

77. A brief overview of major technological trends:
Survivability:

The Threat from Enemy Action: the ability to lay effective minefields with relatively small resources at an unprecedented rate, either using vehicles on the ground or using air and artillery assets, makes the establishment of strongpoints both faster and less labor-intensive. The TEX system has done essentially the same thing for the creation of tank

ditches. Increases in antiarmor firepower likewise enhance survivability just as improvement in vehicle armor decrease it. The rapid increase in the firepower of Soviet artillery and air forces will have a negative effect on survivability, particularly if the increases in delivery means are accompanied by parallel increases in the area of ICM's, scatterable mines, and fuel-air explosives.

**The Logistical Threat:** a critical aspect of precision munitions is that they are logistically very efficient. One Copperhead that will reliably hit a bunker with the first shot replaces the large numbers of normal HE rounds otherwise required for destruction. The implications for the amount of munitions that a given strong point will have to store are major. The quantum increase in aerial resupply capability brought by the Blackhawk helicopter may under certain circumstances also increase survivability.

Effect:

**Firepower:** Recent developments are greatly enhancing the range over which a strong point can quickly deliver fires of pinpoint accuracy. Laser designation allows the delivery of massive firepower on stationary or moving targets without the production of a large signature inside the strong point. FOG-M delivers similar firepower with no signature within enemy direct fire range. Developments in the area of elevating firing platforms will increase the number of usable antitank firing positions from within the depths of the town dramatically. MLRS packs enormous firepower into a few easily hidden vehicles.

**Intelligence:** thermal sights make it difficult to obscure the vision of a strongpoint with smoke. Remote TV cameras make it possible to increase the number of points from which observation is made, to include those points which are too small or too exposed for occupation by a soldier, without an increase in manpower.

78. Christopher Donnelly, "Soviet Tactics for Fighting in Builtup Areas, International Defense Review, Volume 18 No. 7 p. 1985

79. These exercises initially revealed severe shortcomings; so did ours with USAREUR's and the Bundeswehr's MOUT training facilities.

80. For a discussion of the problems of using CSS units in tactical situations see: Thomas A. Hooper, The Principles of War and Rear Area Protection: Have We Achieved Economy of Force? (Ft. Leavenworth KS: Command and General Staff College, School of Advanced Military Studies, 1988) especially p. 18, pp. 25ff.

81. This monograph considered only a few historical examples, and there are many others. The German defense against the British attempt at break-out from Normandy, for example, is an outstanding historical example. See a paper published by Lieutenant Colonel N. M. Pughe for the Henderson Society at Camberly "A More Credible Concept of Defence".

82. All the armies of NATO confront a problem similar to ours. The author has been told by officers of the British Army of the Rhine that a strongpoint defense forms part of some of the British GDP planning. The Bundeswehr's Territorial Heer is a significant reserve force under national command which trains its junior officers for the defense of critical installations.

83. MILES gives us an opportunity to train with a very high degree of realism. Its advantage here is that it can easily portray various degrees of protection. A piece of plywood, depending on the detector belt applied to it, can represent everything from an object which provides only concealment, to one which protects as well as a tank. Movable MOUT installations were in use in the Baumholder Military Community in Germany in the early 1980's.

84. Bright and experienced individuals can make plausible proposals for doctrine that can serve as a base-line for experimentation. See Richard Simpkin, "Hammer, Anvil, and Net --a Re-examination of Conventional Defense of the NATO Center", British Army Review Number 72, December 1982 as an example.

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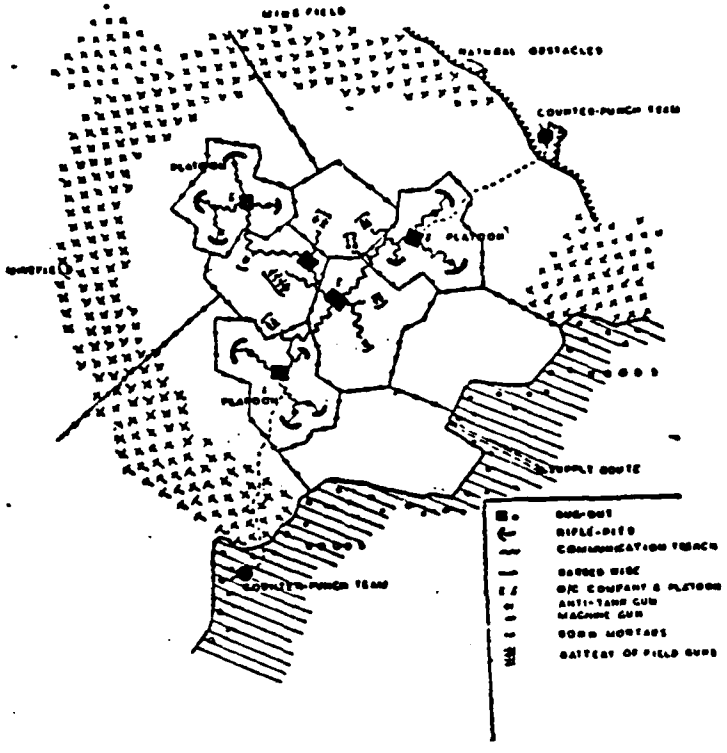
# APPENDIX

# SKETCH 1

# MIKSCHE'S "MATEROS" SYSTEM



28. ISLAND OF RESISTANCE HELD BY COMPANY COMBAT TEAM: 'MARTEROS' SYSTEM

MIKSCHE, p. 220

# SKETCH 2

# GERMAN STRONGPOINT, WINTER 1941

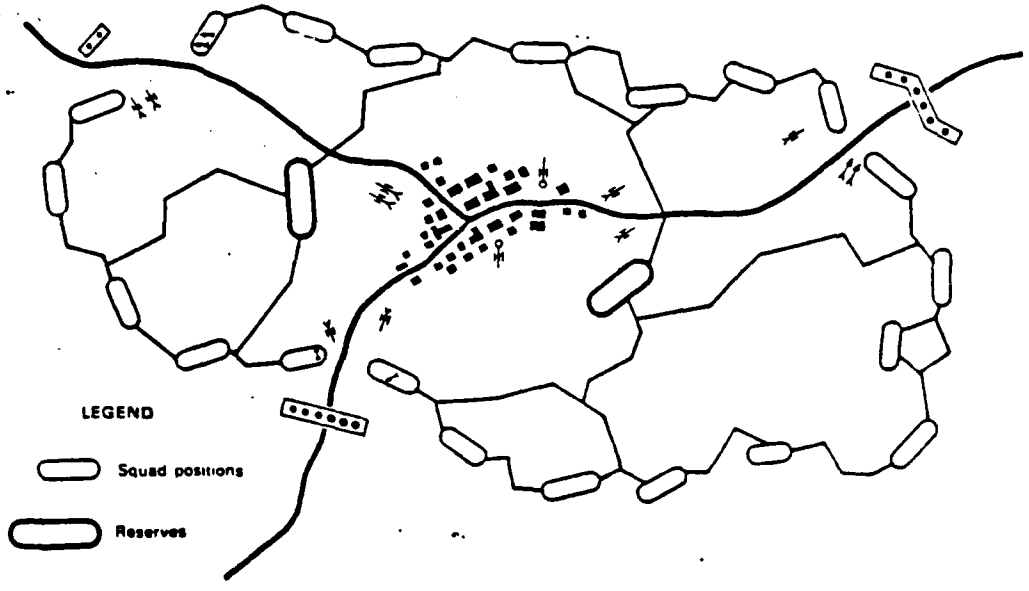



Figure 6. Extended strongpoint

WRAY, p. 79

# SKETCH 3

# STRONGPOINT SYSTEM, WINTER 1941

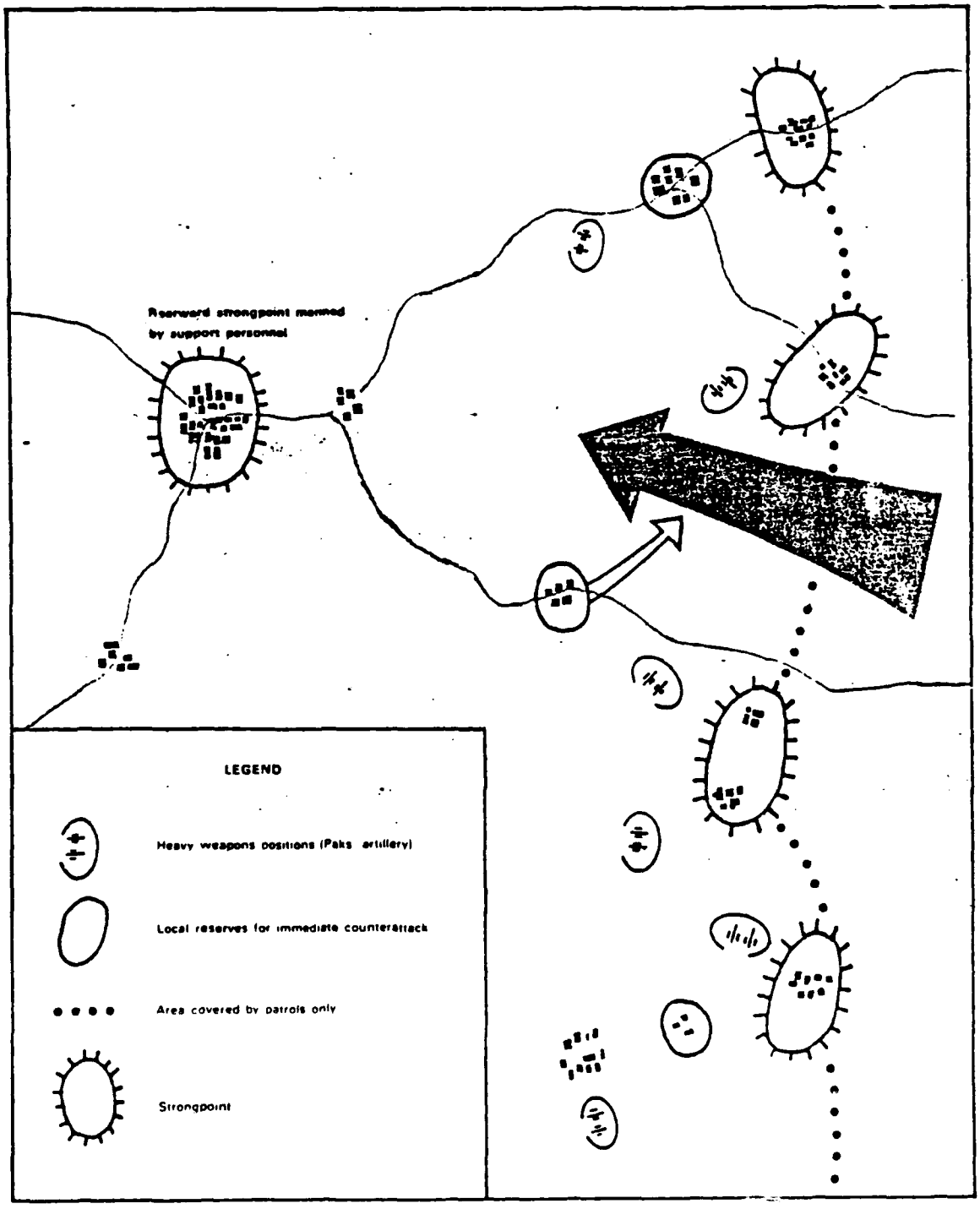



Figure 8 German strongpoint defense tactics winter 1941—42

WRAY, P. 86

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